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EXAMINER	
LEE, GUNYOUNG T	
ART UNIT	**PAPER NUMBER**
2875	

DATE MAILED: 02/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/510,134	BLANC, CHRISTOPHE	
	Examiner	Art Unit	
	Gunyoung T. Lee	2875	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10/04/2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *17-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *17-32* is/are rejected.

7)☐ Claim(s) *17, 21-22, 24 and 25-32* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *04 October 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *10/04/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. The claims must be given their broadest reasonable interpretation. See MPEP § 2111.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "one third light source" in line 8 of claim 17 and the "four light sources" in lines of 3-4 of claim 20 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered. Further, the drawings are objected to because the reference "8 et 9" in Fig. 1 and Fig. 5 does not conform to idiomatic English and United States patent practice.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New

Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claims 17, 24 and 32 are objected to because of the following informalities: the phrase "characterized by the fact" in line 7 of claim 17, in lines 4-5 of claim 24, and in line 9 of claim 32 does not conform to the United States patent practice. Appropriate correction is required.

4. Claims 25-31 are objected to because of the following informalities: the term "Guide" in line 1 of the claims is not consistent with the original term "lightguide" in line 2 of claim 17. Appropriate correction is required.

5. Claim 22 is objected to because of the following informality: the abbreviation "CMS" in line 2 of the claim renders the claim indefinite. Appropriate correction is required.

6. Claims 21, 27 and 31 are further objected to because of the following informalities: the pronouns "these" in line 3 of claim 21, "it" in line 4 of claim 27, and

"this" in line 3 of claim 31 render the claims indefinite. Appropriate correction is required.

7. Claim 30 is further objected to because of the following informality: the scope of "the central groove" in line 2 of claim 30 lacks proper antecedent basis. Appropriate correction is required.

8. Claim 32 is further objected to because of the following informality: the phrase "generally lying in a range from 104 to 10 cm2" in line 5 of claim 32 renders the claim indefinite because the phrase is placed within the parentheses. Appropriate correction is required.

Claim Rejections - 35 USC § 112

9. Claim 23 is rejected as failing to define the invention in the manner required by 35 U.S.C 112, second paragraph, because there are three different luminance ranges (a. in excess 1,000 cd/m2, b. equal to 4,000 cd/m2, and c. from 5,000 to 20,000 cd/m2), which renders the claim indefinite.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. The functional statement that does not direct to structural limitations of an apparatus has not been given any patentable weight (see MPEP § 2114). The functional statements in the claims are not further given any patentable weight.

12. Claims 17 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Akahane et al. (US 5,667,289).

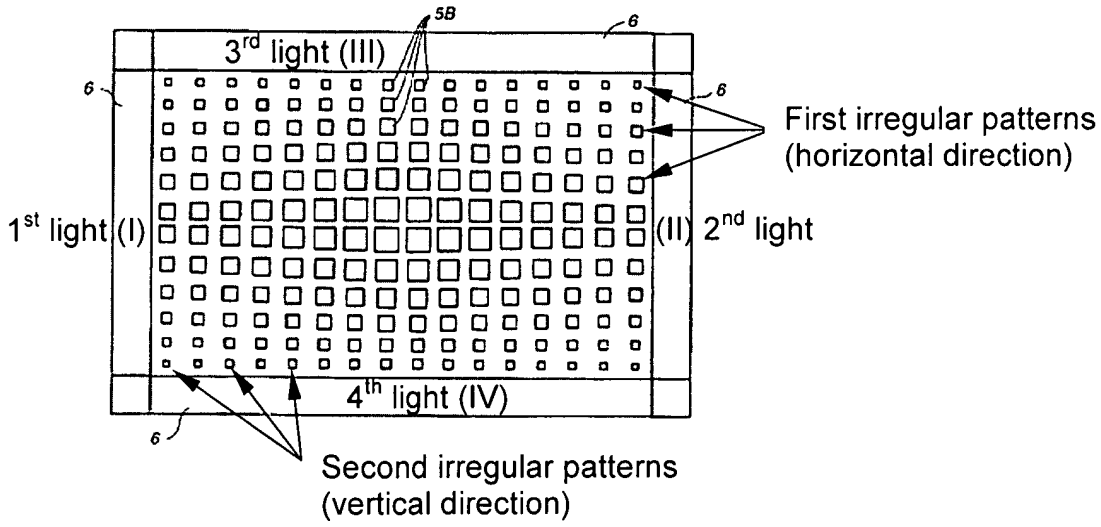
13. Akahane et al. disclose a background lighting system for a liquid crystal display (LCD).

14. In regards to claim 17, as best understood by Examiner, Akahane et al. disclose in the first embodiment (Fig. 6A):

- A lightguide (Fig. 6A) comprising a plate (7), comprising at least two opposed side edges, one face;
- Wherein first irregular diffusing patterns formed in the plate (Fig. 9) (as shown in the picture of page 6) (col. 5, lines 15-16);
- Two light sources (Fig. 9, 6) arranged along two opposed side edges of the plate;
- At least one third light source (Fig. 9, 6) arranged along a third side edge of the plate;
- Second irregular diffusing patterns (as shown in the picture on page 6) formed in the plate, which crisscross with the first diffusing patterns (col. 9, lines 18-20).

In regards to claim 21, Akahane et al. further disclose:

- Wherein the light sources have (inherently) different visible light emission colors (for a color LCD panel, col. 3, lines 45);
- Wherein the light sources are light-emitting diodes (LEDs) (col. 5, line 11).



15. Claim 24 is rejected under 35 U.S.C. 102(b) as being anticipated by Akahane et al. (US 5,667,289).

16. Akahane et al. was discussed in the rejection of clam 17 above.

17. In regards to claim 24, as best understood by Examiner, Akahane et al. disclose in the second embodiment (Fig. 5):

- A plate (Fig. 5, 1) with two parallel faces and at least two opposed side edges (3B) with a first face;
- Wherein the first face has a plurality of first irregular elongate diffusing patterns (3A in horizontal direction);
- The guide (Fig. 5) has second irregular elongate diffusing patterns (in vertical direction) crisscrossing the first diffusing patterns (3A in horizontal direction).

Claim Rejections - 35 USC § 103

18. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

19. Claims 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Egawa et al. (US 6,631,998) in view of Akahane et al. (US 5,667,289), as applied to claim 17 above, and Teragaki et al. (US 6,123,431).

20. Egawa et al. disclose a spread illuminating apparatus for a liquid crystal display (LCD) (col. 1, lines 5-9).

21. In regards to claims 18-20, as best understood by Examiner, Egawa et al. disclose:

- A lightguide (Fig. 5) comprising a plate (2), comprising at least two opposed side edges, one face (36);
- Wherein first irregular diffusing patterns (Fig. 5, 39) (Fig. 4) formed in the plate (Fig. 5, 2);
- Wherein the first irregular diffusion patterns are grooves (Fig. 6, 37) (claim 19).

However, Egawa et al. do not expressly disclose:

- At least one third light source arranged along a third edge of a plate (claims 18-20) and a fourth light source arranged along a fourth edge (claim 20);
- A second irregular diffusing patterns formed in the plate, which crisscross with the first diffusing patterns (claims 18-20);
- Wherein the first and second diffusing patterns extend in two essentially orthogonal directions (claim 19);
- Wherein the light source consists of light emitting diodes (LEDs) (claim 20).

Akahane et al. discloses a LCD background lighting system (Fig. 9, as shown in the picture on page 6) having:

- At least one third light source (III in the picture on page 6) arranged along a third edge of a plate and a fourth light source (IV) arranged along a fourth edge;
- Wherein the light source (I, II, III, IV in the picture on page 6) consists of light emitting diodes (LEDs) (col. 5, line 11);
- Wherein the first pair of light sources (I, II in the picture on page 6) and the second pair of light sources (III, IV) are disposed in two essentially orthogonal directions.

Teragaki et al. disclose a light guide for a liquid crystal display (LCD) (col. 1, lines 17-11) having:

- First (Fig. 15, 21) and second (31) diffusing patterns formed in the plate (20) crisscross each other orthogonally.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the four light sources of Akahane et al. by adding additional pair of light sources (III and IV in the picture on page 6) for the spread illuminating apparatus of Egawa et al. in the direction orthogonal to the first pair of light sources (Fig. 5, 5a, 5b) of Egawa et al.. Then, the same irregular diffusing patterns (Fig. 5, 37) are formed in the orthogonal direction as the second diffusing patterns for the second pair of light sources, which produces the plate with first and second diffusing patterns disposed in two essentially orthogonal directions as shown in Teragaki et al.. This will provide illumination with increased intensity and high uniformity for a LCD display panel and thereby increases the quality of the images on the LCD panel.

22. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Akahane et al. (US 5,667,289) as applied to claim 17 above, and further in view of Kuwabara et al..

23. In regards to claim 22, as best understood by Examiner, Akahane et al. disclose the invention substantially as claimed except for white LEDs with a circuit board that surrounds a plate. Kuwabara et al. disclose a surface lighting device (Fig. 1) having white LEDs (2) (col. 4, line 64 – col. 5, line 5) with a circuit board (21) that surrounds a

plate (1). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the white LEDs and circuit board of Kuwabara for the background lighting system of Akahane to provide high quality illumination with a low power consumption and for a long period of time. This will reduce the maintenance cost of the background lighting system, which is desirable in the design of a lighting device.

24. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Akahane et al. (US 5,667,289) as applied to claim 17 above.

25. In regards to claim 23, as best understood by Examiner, Akahane et al. disclose the invention substantially as claimed except for a face emitting luminance in excess of 1,000 cd/m2. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the emitting light from a face with luminance more than 1,000 cd/m2 for the adequate illumination to provide bright and clear images on a display panel. Further, it has been held that discovering an optimum value of a result-effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

26. Claims 25-26, 28 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Egawa et al. (US 6,631,998) in view of Akahane et al. (US 5,667,289), as applied to claim 24 above, and Teragaki et al. (US 6,123,431).

27. Egawa et al. disclose a spread illuminating apparatus for a liquid crystal display (LCD) (col. 1, lines 5-9).

28. In regards to claims 25-26, 28 and 31, as best understood by Examiner, Egawa et al. disclose:

- A plate (Fig. 5, 2) with two parallel faces and at least two opposed side edges with a first face (36);
- Wherein the first face (Fig. 5, 36) has a plurality of first irregular elongate diffusing patterns (37);
- Wherein the first rectilinear diffusing patterns (Fig. 5, 37) are parallel each other and spaced apart at varying distances (Fig. 6, 38) (claim 25);
- Wherein the first plurality diffusing patterns extend over the first face (36) and are grooves (Fig. 5, 37) formed in the plate (2) (claim 26);
- Wherein the diffusing patterns (Fig. 6) comprise a central depression (37) and peripheral projections (38a-n) arranged on both sides of the depression (37) (claim 28);
- Wherein the diffusing patterns (Fig. 5, 37) for a grid, with the area (38) of the meshes of the grid decreasing in size essentially regularly and monotonically on approaching the center of the plate (2) (col. 7, line 61 – col. 8, line 1) (claim 31).

However, Egawa et al. do not expressly disclose:

- Second irregular elongate diffusing patterns which crisscross the first diffusing patterns (claims 25-26, 28 and 31);

- Wherein the second plurality diffusion patterns that are parallel with each other and are spaced apart at varying distances (claim 25);
- Wherein the second diffusing patterns is orthogonal to the first diffusing patterns (claim 25).

Akahane et al. discloses a LCD background lighting system (Fig. 9, as shown in the picture on page 6) having:

- Four light sources (I, II, III and IV in the picture on page 6) arranged along a third edge of a plate.

Teragaki et al. disclose a light guide for a liquid crystal display (LCD) (col. 1, lines 17-11) having:

- First (Fig. 15, 21) and second (31) diffusing patterns formed in the plate (20) crisscross each other orthogonally.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the four light sources of Akahane et al. by adding additional pair of light sources (III and IV in the picture on page 6) for the spread illuminating apparatus of Egawa et al. in the direction orthogonal to the first pair of light sources (Fig. 5, 5a, 5b) of Egawa et al.. Then, the same irregular diffusing patterns (Fig. 5, 37) are formed in the orthogonal direction as the second diffusing patterns for the second pair of light sources, which produces the plate with first and second diffusing patterns disposed in two essentially orthogonal directions as shown in Teragaki et al.. This will provide illumination with increased intensity and high uniformity for a LCD display panel and thereby increases the quality of the images on the LCD panel.

29. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Egawa et al. (US 6,631,998) in view of Akahane et al. (US 5,667,289), as applied to claim 24 above, and Goto et al. (US 5,999,685).

30. Egawa et al. disclose a spread illuminating apparatus for a liquid crystal display (LCD) (col. 1, lines 5-9).

31. In regards to claim 27, as best understood by Examiner, Egawa et al. disclose:

- A plate (Fig. 5, 2) with two parallel faces and at least two opposed side edges with a first face (36);
- Wherein the first face (Fig. 5, 36) has a plurality of first irregular elongate diffusing patterns (37);
- Wherein the first diffusing patterns (Fig. 5, 37) are grooves formed in the plate and extend over the first face (36).

However, Egawa et al. do not expressly disclose:

- Second irregular elongate diffusing patterns which crisscross the first diffusing patterns;
- Wherein the second diffusing patterns extend over a second face of a plate that is distinct from the first face, with the first and second diffusing patterns comprising grooves formed in the plate.

Akahane et al. discloses a LCD background lighting system (Fig. 9, as shown in the picture on page 6) having:

32. Four light sources (I, II, III and IV in the picture on page 6) arranged along a third edge of a plate.

33. Goto et al. disclose a light guide plate (Fig. 7) for a liquid crystal display (LCD) having:

34. First (Fig. 7, 2) and second (3) diffusing patterns that crisscross each other, wherein the second diffusing patterns (3) extend over a second face of a plate (1) that is distinct from the first face.

35. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the four light sources of Akahane et al. by adding additional pair of light sources (III and IV in the picture on page 6) for the spread illuminating apparatus of Egawa et al. in the direction orthogonal to the first pair of light sources (Fig. 5, 5a, 5b) of Egawa et al.. Then, the similar irregular diffusing patterns (Fig. 5, 37) are formed in the orthogonal (crisscross) direction as the second diffusing patterns for the second pair of light sources, where the second diffusing patterns are formed on a second face of the plate that is distinct from the first face as shown in Goto et al.. The plate of Goto et al. is fabricated at a reduced cost by forming the diffusing patterns on two distinct surfaces simultaneously (col. 7, lines 29-37). Thus, this will provide the spread illuminating apparatus that provides high quality images on a LCD panel with high intensity illumination at a low manufacturing cost, which is desirable in the design of an illuminating device for a LCD panel.

36. Claims 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Egawa et al. (US 6,631,998), Akahane et al. (US 5,667,289) and Teragaki et al. (US 6,123,431) as applied to claims 28 above.

37. In regards to claims 29-30, as best understood by Examiner, Egawa et al., Akahane et al. and Teragaki et al. disclose the invention substantially as claimed except for:

- Wherein the central depression of a grove has a depth lying in the range of 10-30 microns (claim 29);
- Wherein an average width of the diffusing patterns is in the range of 50-120 microns (claim 30).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to set the depth of a groove in the range of 10-30 microns and the average width of the diffusing patterns in the range of 50-120 microns, since it has been held that where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

38. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Teragaki et al. (US 6,123,431).

39. In regards to method claim 32, Teragaki et al. disclose a backlight apparatus (Fig. 15) for a liquid crystal display (LCD) (col. 1, lines 7-11) having:

- A lightguide (Fig. 15) in a form of a plate (20) whose one face comprises a plurality of diffusing patterns (21, 31);
- Wherein each of the patterns (Fig. 14, 21, 31) comprises a central depression and peripheral protrusions arranged on both sides of said central depression;
- Wherein the plate (20) is made of polycarbonate (col. 5, lines 3-5) (col. 9, lines 55-58);
- Wherein a first parallel diffusing patterns (Fig. 15, 21) are orthogonal to a second parallel diffusion patterns (31).

40. Therefore, all structural limitations claimed in the method claim 32 are met by Teragaki et al. and it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a method of manufacturing for the backlight apparatus of Teragaki et al..

Conclusion

41. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Tai (US 5,854,872), Ishihara et al. (US 2001/0019379) and Wagner et al. (US 6,30,386) show light guide plates having a plurality of diffusion patterns.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gunyoung T. Lee whose telephone number is (571) 272-8588. The examiner can normally be reached between 7:30 - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra L. O'Shea can be reached at (571) 272-2378. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GTL
2/6/2006

JOHN ANTHONY WARD
PRIMARY EXAMINER